

REMARKS

In view of the above amendments and the following remarks, further examination and reconsideration of the objection and rejections in the Office Action of October 17, 2008 are respectfully requested.

The specification and abstract have been carefully reviewed and revised to make grammatical and idiomatic improvements in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added. Also attached hereto is a marked-up version of the changes made to the specification and abstract by the current amendment. The attachment is captioned “**Version with Markings to Show Changes Made.**”

Claims 23-28, 34, and 35 have been canceled without prejudice or disclaimer to the subject matter contained therein. New claims 43-45 have been added.

In item 1 of the Office Action, claim 24 is objected to due to informalities. This objection is moot in view of the cancellation of claim 24. Thus, withdrawal of the objection is respectfully requested.

In item 2 of the Office Action, claim 42 is rejected under 35 USC § 101 as being directed to non-statutory subject matter. Claim 42 has been amended to recite a computer-readable recording medium storing a computer program. Thus, the rejection is now believed inapplicable to claim 42, and withdrawal of the rejection is respectfully requested.

In item 4 of the Office Action, claims 25, 26, 28, and 32 are rejected under 35 USC § 112, second paragraph, as being indefinite. The rejection of claims 25, 26, and 28 is moot in view of their cancellation. The language indicated in the rejection of claim 32 has been revised specifically to address the rejection. Accordingly, it is submitted that the rejection is no longer applicable, and its withdrawal is respectfully requested.

In item 6 of the Office Action, claims 22, 23, 29-31, 33, 35, 39, and 42 are rejected under 35 USC § 103(a) as being obvious over Wu et al. (US 6,272,460); in item 7 of the Office Action, claims 24, 25, and 27 are rejected under 35 USC § 103(a) as being unpatentable over Wu in view

of Honda et al. (US 4,538,234); in item 8 of the Office Action, claims 26 and 28 are rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Kamba (US 2003/0171916); in item 9 of the Office Action, claim 32 is rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Borth et al. (US 4,628,529); in item 10 of the Office Action, claim 34 is rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Rao et al. (US 6,775,629); in item 11 of the Office Action, claim 36 is rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Tsutsui (US 5,471,558); in item 12 of the Office Action, claim 37 is rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Borth; in item 13 of the Office Action, claim 38 is rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Rozinaj et al. (US 5,818,928); in item 14 of the Office Action, claim 40 is rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Levinson et al. (US 4,277,644); in item 15 of the Office Action, claim 41 is rejected under 35 USC § 103(a) as being unpatentable over Wu in view of Honda and further in view of Hagan et al. (US 6,058,359).

The claims have been amended to further distinguish the present invention over the prior art of record. The above-mentioned rejections are believed inapplicable to the claims for the reasons below, and their withdrawal is respectfully requested.

Claims 22, 44, 45, and 39 recite methods and an apparatus for harmonic structure acoustic signal detection, claims 40 and 41 recite speech recognition and recording apparatuses, respectively, and claim 42 recites a computer program stored in a computer-readable recording medium for harmonic structure acoustic signal detection, all having an acoustic feature extraction step or unit which includes a correlation value calculation step or unit for dividing components obtained through frequency transformation of frames into frequency bands of predetermined bandwidth, and calculating a correlation value between components in predetermined frequency bands. Claims 22, 39-42, 44, and 45 also recite a weight calculation step or unit for calculating a weight, and a (harmonic structure) acoustic feature extraction step

or unit of extracting an acoustic feature which is a product of the correlation value and the weight. These limitations are not disclosed in the prior art of record.

Regarding Wu, it discloses a method for implementing speech verification in a noisy environment. Wu discloses that a pitch detector applies an FFT to data frames (column 5, lines 14-17) and detects a pitch for each frame by calculating correlation values between a spectral sum for each frame and a comb window (column 7, lines 34-37). A confidence determiner then determines whether each frame is speech by analyzing the correlation values (column 9, lines 23-28). However, Wu does not disclose a weight calculation step or unit for calculating a weight, and a (harmonic structure) acoustic feature extraction step or unit of extracting an acoustic feature which is a product of the correlation value and the weight, as recited in claims 22, 39-42, 44, and 45.

Regarding Kamba, it discloses a method of reproducing audio signals wherein, when a difference between the maximum and minimum values of computed cross-correlation values is greater than a threshold value, an extrapolation of high frequency components is prohibited (paragraph 74, lines 1-6). However, Kamba does not disclose a weight calculation step or unit for calculating a weight, and a (harmonic structure) acoustic feature extraction step or unit of extracting an acoustic feature which is a product of the correlation value and the weight, as recited in claims 22, 39-42, 44, and 45.

As for Honda, Borth, Rao, Tsutsui, and Hagan, these references do not obviate the shortcomings of Wu and Kamba as discussed above. Therefore, the combined disclosures of Wu, Kamba, Honda, Borth, Rao, Tsutsui, and Hagan do not suggest the present invention as recited in claims 22, 39-42, 44, and 45.

Accordingly, the present invention as recited in claims 22, 39-42, 44, and 45 is not disclosed or suggested by the prior art of record. It is respectfully submitted that claims 22, 39-42, 44, and 45 are clearly allowable over the prior art of record, as are claims 29-33, 36-38, and 43 depending therefrom.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels that there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Tetsu SUZUKI et al.

/Aldo A. D'Ottavio/

By: 2009.01.21 13:22:38 -05'00'

Aldo A. D'Ottavio
Registration No. 59,559
Agent for Applicants

AAD/DMO/kh
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
January 21, 2009